

ARGUMENTS

I. Discussion of the Amendment

Claim 1 has been amended to specify that the cellulose fibers are softwood pulp fibers and that the resulting products are refined paper making pulp fibers. Pulp is defined in "Pulp & Paper Dictionary by John R. Lavigne and technical editing by Ken L. Patrick, a copy of relevant portions of which is attached, as:

"A fibrous material produced by mechanically or chemically reducing woody plants into their component parts from which pulp, paper and paperboard sheets are formed" Emphasis Added

Claims have also been amended by the addition of new claims 20 to 27. These claims cover more preferred embodiments of the invention.

There is clear antecedent basis for this amendment at

- a) lines: 1 to 24 of page 3 of the specification;
- b) lines 1 and 2 and 8 to 15 of page 6 of the specification;
- c) line 5 of page 8 of the specification;
- d) lines 3 to 10 of page 7 of specification; and
- e) originally filed claims 10 and 11.

The amendment does not introduce new matters and should be entered accordingly.

II. Rejection of claims 1-14 and 18 under 35 USC § 103(a) as being unpatentable over USP 6,306,253 ("LINDAHL et al") in view of USP 4,410,397 ("KEMPF")

Claims 1-14 and 18 are rejected under 35 U.S.C. § 103 (a) as being unpatentable over LINDAHL et al in view of KEMPF. This rejection is respectfully traversed.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation in the references to modify the reference or to

combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Indeed, both the suggestion and the expectation of success must be found in the prior art, not in the Applicant's disclosure. In re Vaeck, 20 USPQ2d 1438 (Fed. Cir. 1988) (emphasis added). The Applicant believes that the Examiner has failed to make a *prima facie* case of obviousness.

One aspect of this invention relates to a process for modulating the morphology of softwood pulp fibers by subjecting the pulp fibers to a metal ion-activated peroxide treatment at a pH of from 1 to 9 and subjecting the treated fibers to a refining treatment to form paper making refined pulp. In new claim 25, the softwood pulp is subjected to a metal ion-activated peroxide treatment with a composition comprising metal ions and peroxide. Another aspect of this invention relates softwood pulps having a modified morphology, leading to paper making properties substantially functionally equivalent to hardwood pulp papermaking properties. This invention is not taught or suggested by the cited references either individually or in combination.

LINDAHL et al describes a process for the treatment of wood chips to remove metal from the chips prior to subsequent treatments such as digestion of the chips treated in the process and bleaching of the pulp formed by digestion. At col 3, lines 15 to 18 and 34 to 40, LINDAHL et al states:

"In accordance with the process of this invention, particulate lignocellulosic material is pretreated to remove heavy metals and resins without any delignification and/or defibration...Following pretreatment, the particulate lignocellulosic material can be delignified and pulped and/or defibrated."

The deficiencies of LINDAHL et al are apparent. First, the claimed process is directed to the treatment of softwood pulp fibers and not wood chips as is the case of LINDAHL et al. As

noted above pulp is formed by reducing wood chips to their component parts or in other words defibrated. Second, in the claimed invention, the softwood pulp fibers are treated with peroxide in the PRESENCE of metal ions. The teachings of LINDAHL et al are diametrically opposed to the present invention in that this reference teaches that metal should be removed prior to any subsequent treatments such as digestion and bleaching which means that these subsequent pulp treatments must necessarily be carried out in the ABSENCE of metals. See col. 3, lines 15 to 35 of LINDAHL et al. Therefore, LINDAHL et al teaches away from what applicant has done and is in fact "demotivating". LINDAHL et al clearly does not provide the necessary motivation to modify the teachings of that reference to form the claimed invention with any reasonable expectation of success as is required to support a rejection of claims for prima facie obviousness.

The deficiencies of LINDAHL et al are not obviated by KEMPF, the secondary reference. KEMPF is directed to a delignification and bleaching process in which peroxide is used. This reference is relied by the Examiner as teaching adding metal additives during peroxide bleaching at a pH of 1-7 to retard viscosity loss and degradation. Based on this teaching it is Examiner's opinion that it would have been obvious to add metal additive of KEMPF to retard viscosity loss and degradation due to peroxide oxidation during the bleaching of LINDAHL et al. Applicant does not agree with this assessment. LINDAHL et al specifically teach the removal of metal from the chips so that no metals are present during bleaching and based on Examiner's reading KEMPF teaches the addition of metal to peroxide bleaching. The teachings of these references are dramatically opposed to each other in that teach the exact opposite. Moreover, in the Office Action dated 12/14/2004, Examiner states that KEMPF teaches:

Certain metals such as Manganese, copper and iron reduce

pulp viscosities and are added to lignocellulosic material when producing pulp unsuitable for paper, but is well constituted for the production of viscose rayon".

It is significant to note that the product of the presently claimed invention is papermaking pulp. To this extent KEMPF teaches away from what applications have done and for that matter what LINDAHL et al. when that references teaches the advantages of pretreatment to remove metals from wood chips.

It is well settled law that references can be combined to frame a Section 103 rejection, but they cannot be combined indiscriminately. In re Mercier, 515 F2d 1161, 184 USPQ (C.C.P.A. 1982). As the Court stated in re Steniski, 444 F2d 581, 170 USPQ 343 (C.C.P.A. 1971):

"there must be some logical reason apparent from positive, concrete evidence of record which justifies a combination of primary and secondary references and subsequent conclusion of obviousness."

No such "logical reason" has been presented nor is any set forth in the references themselves. There is no teaching or suggestion in any cited reference that would motivate one of ordinary skill in the art to pick and choose bits and pieces from KEMPF and LINDAHL et al and combine same to hypothetically create the claimed invention. In fact the prior art is "demotivating" and teaches away from such a combination of the teachings of KEMPF and LINDAHL et al in that LINDAHL et al expressly teaches away from modifying the process of that reference as suggested by Examiner.

This rejection is inappropriate and should be withdrawn.

III. Rejection of claims under 35 USC § 103 as being unpatentable over LINDAHL et al in view of KEMPF, with or without USP 6,436,238 (" PITKANEN et al.")

Claims 15-18 are rejected under 35 U.S.C. § 103 (a) as being unpatentable over LINDAHL et al in view of KEMPF with or without PITKANEN. This rejection is respectfully traversed.

The deficiencies of LINDAHL et al. and KEMPF have been clearly discussed above. PITKANEN does not cure any of these deficiencies. Examiner relies on this reference as teaching:

"using a mixture of softwood and hardwood."

PITKANEN includes absolutely no teaching or suggestion of a process for modulating the morphology of cellulosic fibers by subjecting the fibers to a metal ion-activated peroxide treatment at a pH of from 1 to 9 and subjecting the treated fibers to a refining treatment or of cellulosic fibers such as having a modified morphology. This rejection is clearly inappropriate and should be withdrawn.

Respectfully submitted,

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PULP & PAPER Dictionary

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TECHNICAL EDITING BY **Ken L. Patrick**

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PULP FURNISH

PUCKER: A paper defect appearing as a wavy, "cockled" surface caused by the uneven contraction of the sheet during the drying process on the paper machine.

PUCKER WRINKLE: A paper roll defect appearing as a small, unopened fold in the paper, caused by a blister entering the nips of rolls on a paper machine.

PUG MILL: A unit used to treat lime mud in the lime recovery area of a pulp mill before being processed in fluid bed calciners.

PULLEY: A wheel or combination of various sized wheels with grooved rims in which a rope, cord, or chain is run to amplify the force applied at one end for lifting heavy weights or pulling heavy loads in a pulp and paper mill.

PULLOVER: A pulp mill term for the cooking liquor mixed with relief gases and emitted from a sulfate batch digester during the cooking process. Also called *carryover*.

PULP: A fibrous material produced by mechanically or chemically reducing woody plants into their component parts from which pulp, paper, and paperboard sheets are formed after proper slushing and treatment, or used for dissolving purposes (dissolving pulp or chemical cellulose) to make rayon, plastics, and other synthetic products. Sometimes called *wood pulp*.

PULP BALES: Sheets of dried, fibrous material made up in bundles for shipment.

PULP BLEACHING: The process of purifying and whitening pulp in a pulp mill by chemically treating it to alter the coloring matter and to impart a higher brightness to the pulp.

PULP BOARD: A coarse paperboard made on a multi-cylinder type of paper machine from mixed wastepaper and/or mechanical pulps.

PULP CONTENT: The amount of fiber in paper and paperboard as compared with nonfibrous clay, fillers, and coating materials. It is determined by laboratory analysis.

PULP COOKING: The process of reacting fiber-containing materials with suitable chemicals, usually under high temperature and pressure, in order to reduce them into their component parts with the fiber portion separated in the form of pulp. More commonly known as *pulping*.

PULP FURNISH: The pulps used to make up a multi-material stock mixture or blend used for manufacturing a particular grade of paper on a paper machine.

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